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PRESS RELEASE

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The first exoplanet was discovered 30 years ago at the UNIGE

On 6 October 1995,
the first exoplanet
was discovered at the
University of Geneva
Observatory, revolutionizing
our understanding
of the universe.

On 6 October 1995, Michel Mayor and Didier Queloz, researchers at the University of Geneva Observatory (UNIGE), announced the discovery of the first planet orbiting a star other than the Sun. This groundbreaking achievement, which transformed our understanding of the universe, crowned three decades of work dedicated to developing spectroscopic instruments of unprecedented precision, capable of detecting worlds beyond the solar system. That pioneering spirit continues to drive research today. To honour this legacy, UNIGE will award its Innovation Medal to the Department of Astronomy during Dies Academicus on 10 October, reaffirming Geneva's status as an international hub for exoplanet science and the search for life in the universe.

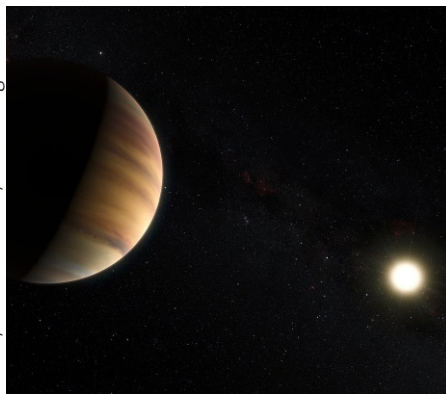
By the mid-20th century, astronomers suspected that planetary systems formed alongside their stars. If true, the Milky Way would be home to hundreds of billions of worlds. The challenge was how to detect them.

In the 1970s, researchers at the Geneva Observatory developed an innovative method to measure tiny variations in the velocity of stars. A planet, even a small one, causes its host star to wobble ever so slightly. Building on this approach, Michel Mayor at UNIGE and French optical engineer André Baranne set out in the late 1980s to design a new instrument for the two-metre telescope at the Haute-Provence Observatory in southern France. Its unprecedented precision opened the door to detecting giant planets comparable to Jupiter.

First Observation Programme

In October 1993, Michel Mayor submitted an ambitious request: one week of telescope time every two months—42 nights per year—to search for exoplanets. Despite fierce competition, his proposal was accepted. Together with his doctoral student at the time, Didier Queloz, they focused on 142 stars similar to our Sun—and thus began the Swiss quest for exoplanets.

By the end of 1994, Didier Queloz, who was leading the observations for the programme at the time, sent a fax to Michel Mayor, who was on research sabbatical at the Institute of Astronomy in Hawaii: “A star is showing variations that appear to be periodic, with a period of only 4.2 days. What do you think?”



This artist's impression shows the hot Jupiter exoplanet 51 Pegasi b orbiting a star located some 50 light-years from Earth in the northern constellation of Pegasus.

High resolution pictures

Caution Before Discovery

The 4.2-day signal suggested a planet with half the mass of Jupiter. But according to established models, giant planets form far from their stars, in orbits lasting decades — like Jupiter or Saturn in our own solar system. Michel Mayor remained cautious.

It was not until July 1995, when the star was again visible from southern France, that new measurements could be taken. These confirmed the planetary hypothesis. The results were published in the prestigious journal *Nature*, and the official announcement was made at a conference in Florence on 6 October 1995. The planet was named 51 Pegasi b. This historic discovery later earned Michel Mayor and Didier Queloz the Nobel Prize in Physics in 2019.

International Recognition and Continuity

The excitement generated by this discovery firmly established exoplanet research at UNIGE and in Switzerland. In 2014, the Swiss National Science Foundation (SNSF) awarded UNIGE and the University of Bern (UNIBE) a National Centre of Competence in Research dedicated to planetary studies: PlanetS.

In 2018, under the direction of Professor Francesco Pepe at UNIGE, the world's most precise spectrograph, ESPRESSO, was installed on Mount Paranal in Chile's Atacama Desert. With a sensitivity of 10 cm/sec, it can detect planets with masses comparable to Earth. In 2023, under Professor François Bouchy, the NIRPS spectrograph was installed alongside HARPS to track exoplanets in the infrared.

To remain at the forefront of discovery, UNIGE is already developing new projects. RISTRETTO will allow observation of the light from the exoplanet closest to us, orbiting Proxima Centauri, and serve as a prototype for a future instrument on the ESO's 39-metre giant telescope. Meanwhile, the Centre for the Universe and Life (CUL) adopts a transdisciplinary approach to studying the fundamental question of life beyond Earth.

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